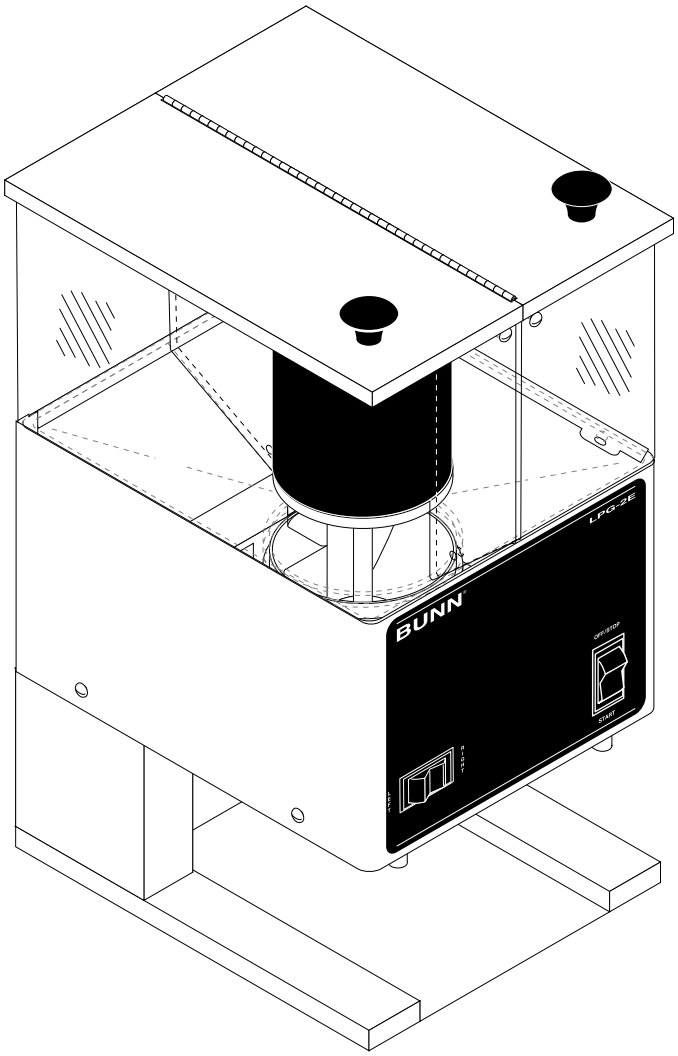
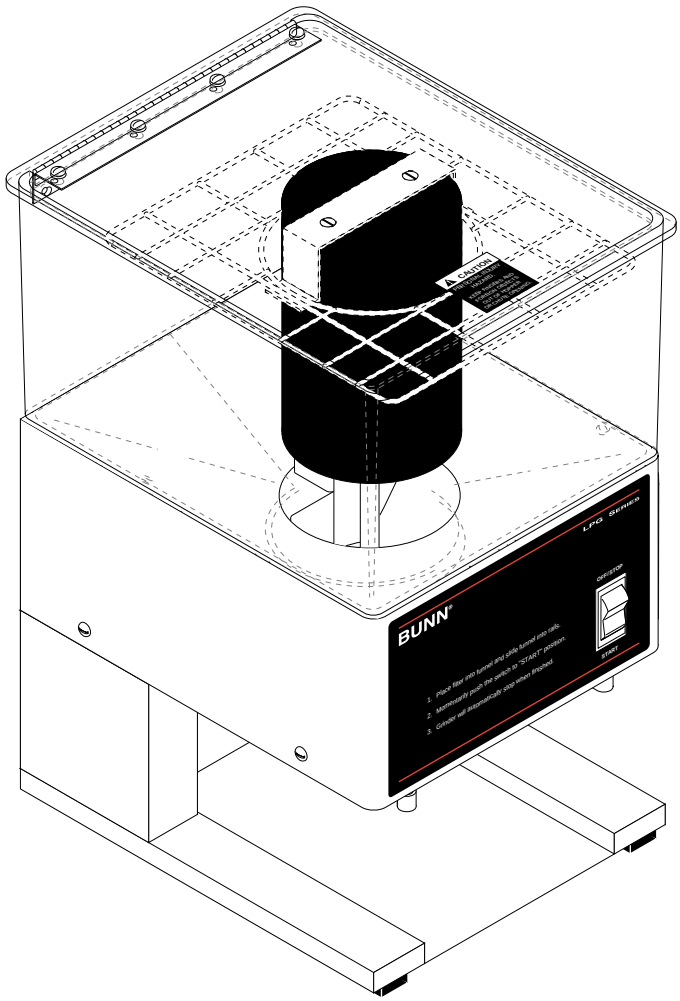
BUNN®

LPG
LPG-2E





OPERATING & SERVICE MANUAL

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www.bunnomatic.com

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INTRODUCTION

The LPG will store up to six pounds and the LPG-2E will store up to three pounds of whole bean coffee in each of two hoppers and grind it to a preset grind and amount into an awaiting funnel and filter from most commercial drip coffee brewers. The equipment is only for indoor use on a sturdy counter or shelf. Adequate space must be available above the grinder to raise the lid when adding beans. Use only with whole bean coffee.

The grind is preset at the factory to drip specifications as set forth by the United States Department of Commerce and adopted by the Coffee Brewing Center of the Pan American Coffee Bureau. Adjustments may be made to alter both the amount and grind from the factory setting.

WARRANTY

Bunn-O-Matic Corp. ("Bunn") warrants the equipment manufactured by it to be commercially free from defects in material and workmanship existing at the time of manufacture and appearing within one year from the date of installation. In addition:

1.) Bunn warrants electronic circuit and/or control boards to be commercially free from defects in material and workmanship for three years from the date of installation.

2.) Bunn warrants the compressor on refrigeration equipment to be commercially free from defects in material and workmanship for two years from the date of installation.

3.) Bunn warrants that the grinding burrs on coffee grinding equipment will grind coffee to meet original factory screen sieve analysis for three years from date of installation or for 30,000 pounds of coffee, whichever comes first.

This warranty does not apply to any equipment, component or part that was not manufactured by Bunn or that, in Bunn's judgement, has been affected by misuse, neglect, alteration, improper installation or operation, improper maintenance or repair, damage or casualty.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY OTHER WARRANTY, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF EITHER MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The agents, dealers or employees of Bunn are not authorized to make modifications to this warranty or to make additional warranties that are binding on Bunn. Accordingly, statements by such individuals, whether oral or written, do not constitute warranties and should not be relied upon.

The Buyer shall give Bunn prompt notice of any claim to be made under this warranty by telephone at (217) 529-6601 or by writing to Post Office Box 3227, Springfield, Illinois, 62708-3227. If requested by Bunn, the Buyer shall ship the defective equipment prepaid to an authorized Bunn service location. If Bunn determines, in its sole discretion, that the equipment does not conform to the warranty, Bunn shall repair the equipment with no charge for parts during the warranty period and no charge for labor by a Bunn Authorized Service Representative during the warranty period. If Bunn determines that repair is not feasible, Bunn shall, at its sole option, replace the equipment or refund the purchase price for the equipment.

THE BUYER'S REMEDY AGAINST BUNN FOR THE BREACH OF ANY OBLIGATION ARISING OUT OF THE SALE OF THIS EQUIPMENT, WHETHER DERIVED FROM WARRANTY OR OTHERWISE, SHALL BE LIMITED, AS SPECIFIED HEREIN, TO REPAIR OR, AT BUNN'S SOLE OPTION, REPLACEMENT OR REFUND.

In no event shall Bunn be liable for any other damage or loss, including, but not limited to, lost profits, lost sales, loss of use of equipment, claims of Buyer's customers, cost of capital, cost of down time, cost of substitute equipment, facilities or services, or any other special, incidental or consequential damages.

USER NOTICES

Carefully read and follow all notices on the grinder and in this manual. They were written for your protection. All notices on the grinder are to be kept in good condition. Replace any unreadable or damaged labels.

⚠ CAUTION

PERSONAL INJURY HAZARD.

KEEP FINGERS AND FOREIGN OBJECTS OUT OF HOPPER OR CHUTE OPENING.

#05876.0000

⚠WARNING

- Use only on a properly protected circuit capable of the rated load.
- Electrically ground the chassis.
- Follow national/local electrical codes.
- Do not use near combustibles.

An extension cord, when used, must be shorter than 20 feet if 16-gage 3-conductor wire, or shorter than 10 feet if 18-gage 3-conductor wire.

FAILURE TO COMPLY RISKS EQUIPMENT DAMAGE, FIRE, OR SHOCK HAZARD

READ THE ENTIRE OPERATING MANUAL INCLUDING THE LIMIT OF WARRANTY AND LIABILITY BEFORE BUYING OR USING THIS PRODUCT

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#20545.0000

ELECTRICAL REQUIREMENTS

The grinder has an attached cordset and requires 2-wire, grounded service rated 120 volts ac, 15 amp, single phase, 60 Hz for 120V models; 100 volts ac, 15 amp single phase, 50Hz for 100V models; and 230 volts ac, 10 amp single phase, 50 Hz for 230V models.

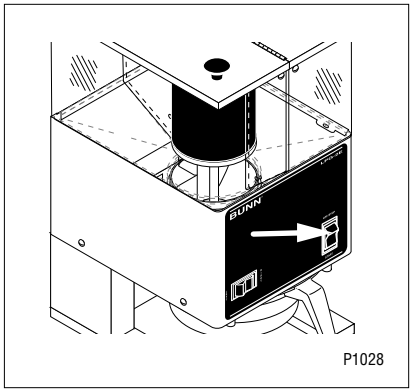
OPERATING CONTROLS

Off/On/Start Switch (Models LPG and LPG-2E)

OFF - (upper position) Switching to this position stops all operation of the grinder.

ON - (middle position) The switch will return to this position after a grind cycle has begun and will remain in this position after grinding has ceased.

START - (lower, momentary position) Pressing the switch to this position and releasing initiates a grind cycle.



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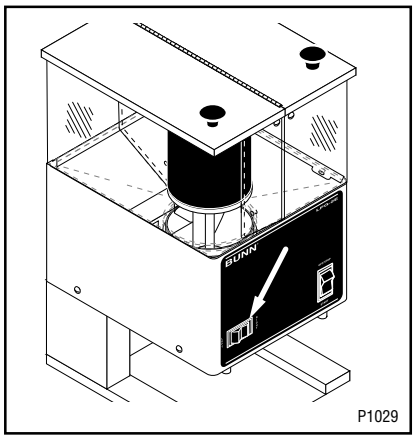
Hopper Selector Switch (Model LPG-2E only)

LEFT - Switching to this position allows beans to be ground from the left hopper.

RIGHT - Switching to this position allows beans to be ground from the right hopper.



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CLEANING

EXTERIOR SURFACES

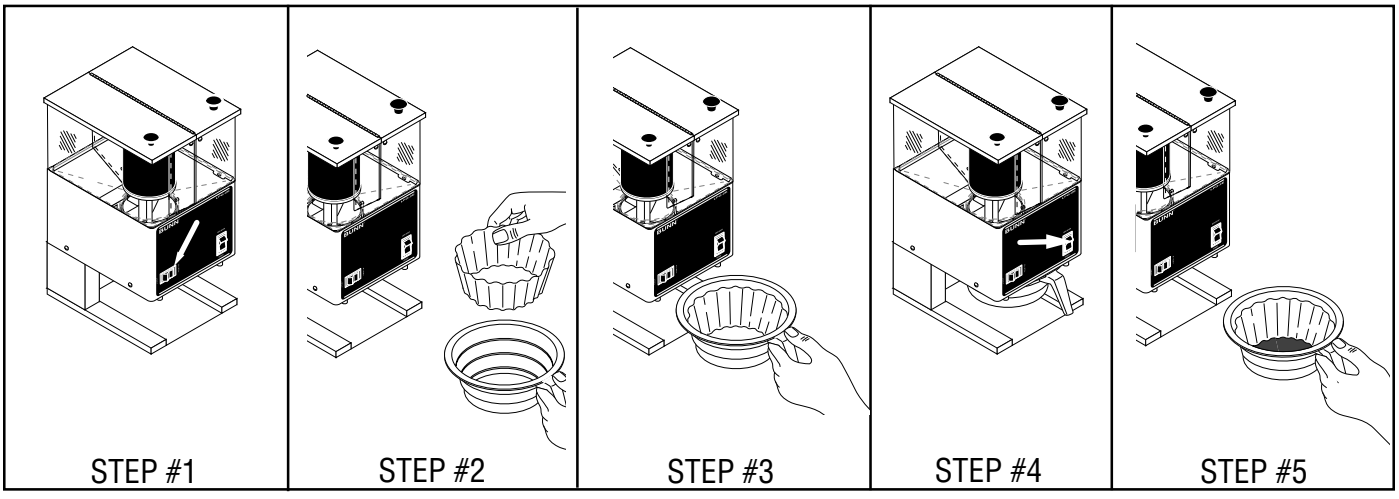
The use of a damp cloth rinsed in any mild, nonabrasive, liquid detergent is recommended for cleaning all surfaces on Bunn-O-Matic equipment. Care should be taken not to scratch the hopper or windows with any abrasive material. Regular cleaning will keep your grinder looking new for years.

GRIND CHAMBER

1. **WARNING** - Unplug grinder before removal of any panel or grind chamber housing parts.
2. Empty all beans from both hopper(s).
3. Plug-in the grinder, place funnel with filter into funnel rails. Press the Off/On/Start switch to the “START” lower position and release. Run a few grind cycles until all the coffee in the grind chamber is dispensed and disconnect grinder from the power source.
4. Remove the funnel with filter and carefully tip the grinder over on it’s back.
5. Remove the two #10-32 screws securing burr housing cap assembly to the burr housing and remove burr housing cap assembly.
6 Remove load disc and slide rotor with lower burr, spring and brass bushing off of the motor shaft.
7. Clean the grind chamber and all parts with a dry non metallic bristle brush and wipe with a dry clean cloth.
8. Reinstall brass bushing (flanged end first), spring and rotor with lower burr onto the motor shaft. Reinstall load disc flat side toward rotor and burr housing cap assembly to the burr housing.
9. Refer to Initial Set-up/Adjustments section to vary grind or weight of dispensed coffee if necessary.

COFFEE GRINDING

1. On models LPG-2E, select (either left or right hopper) with selector switch and visually inspect the desired hopper for an ample supply of whole bean coffee.
2. Place a paper filter into the brew funnel. The filter must not be folded-over or tilted to one side.
3. Insert the funnel into the funnel rails and push until it stops.
4. Momentarily press Off/On/Start switch to the "START" lower position and release. The grinding action will stop automatically after the preset amount of ground coffee is dispensed into the funnel.
5. Remove the funnel from the grinder and level the bed of grounds by gently shaking.
6. The loaded funnel is now ready for use in any commercial drip coffee brewer according to the manufacturer’s instructions.

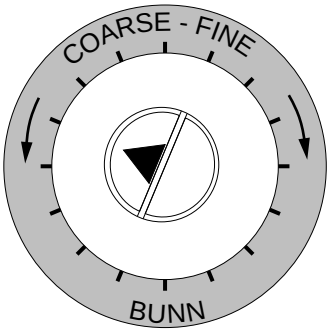


INITIAL SET-UP/ADJUSTMENTS

The grind can be set from fine to very coarse. The grind may be adjusted for use in most commercial coffee brewers. The following procedures should be used to make adjustments.

NOTE - A change in the burr adjustment will also change the amount dispensed. Any adjustment to the burrs should be followed by an adjustment of the timer dials.

Burr Adjustment



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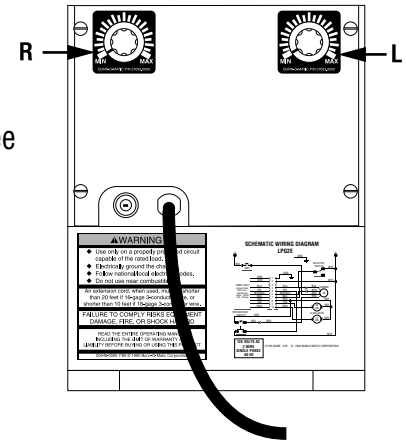
1. Unplug the grinder and empty all beans from the hopper(s).
2. Plug-in the grinder, place funnel with filter into the funnel rails. Momentarily press the Off/On/Start switch to the "START" (lower) position (with desired hopper selected) and release, run a few grind cycles until all of the coffee in the grind chamber is dispensed.
3. Remove the funnel with filter and carefully tip the grinder over on it's back.
4. Place the Off/On/Start switch in the "START" (lower) position and, using the grind adjustment key provided, slowly turn the adjusting screw in a clockwise direction until a metallic whine is heard due to the rubbing of the grinding burrs. (It may be necessary to start more than one grind cycle to obtain the sound).
5. Make a mark with a pen on the decal to note the position of the arrow on the grind adjustment screw.
6. The following settings approximately correspond to the CBC recognized grinds. All are referenced from the arrow position marked in step #5.
   FINE GRIND: Rotate the adjusting screw 7 hash marks in a counterclockwise direction.
   DRIP GRIND: Rotate the adjusting screw 8 hash marks in a counterclockwise direction.
   REGULAR (COARSE) GRIND: Rotate the adjusting screw 10 hash marks in a counterclockwise direction.
   NOTE: Exact adjustment will vary according to bean roast or added flavoring.

Timer Adjustment (Model LPG-2E)



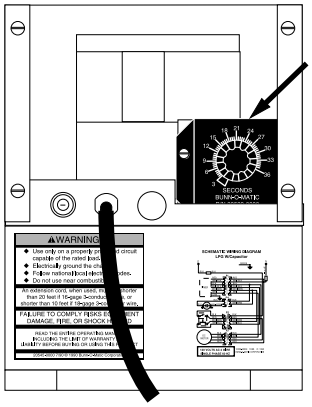
P1035

1. Fill hoppers with whole bean coffee and select hopper to be adjusted.
2. Remove the cover frpm the timer dials.
3. Set the timer dial to 2 seconds for each 1-1/2 ounces of ground coffee desired.
4. Grind a few cycles to verify the setting by weighing samples.
5. Adjust the timer to correspond with the chart below.

Approximate Amount (in Ounces)	Timer Settings (in Seconds)
1-1/2	2
2-1/4	3
3	4

6. Repeat steps 2 - 4 for remaining hopper.

Timer Adjustment (Model LPG)



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1. Unplug the grinder and remove the 2" hole plug in the rear cover.
2. Set the timer dial to 5 seconds for each ounce of ground coffee desired.
3. Verify the setting by weighing a few samples.

Use this 5 second per ounce figure as an APPROXIMATE guide only.

TROUBLESHOOTING

A troubleshooting guide is provided to suggest probable causes and remedies for the most likely problems encountered. If the problem remains after exhausting the troubleshooting steps, contact the Bunn-O-Matic Technical Service Department.

- Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel.
- All electronic components have ac voltage and dc voltage potential on their terminals. Shorting of terminals or the application of external voltages may result in board failure.
- Intermittent operation of electronic circuit boards is unlikely. Board failure will normally be permanent. If an intermittent condition is encountered, the cause will likely be a switch contact or a loose connection at a terminal or crimp.
- Make certain that all electrical connections are tight and isolated.

WARNING

- Exercise extreme caution when servicing electrical equipment.
- Turn power OFF when servicing, except when electrical tests are specified.
- Follow recommended service procedures.
- Replace all protective shields or safety notices.

Problem	Probable Cause	Remedy
Grinder will not start.	1. No power or incorrect voltage	(A) Plug-in the grinder. (B) Check the voltage at the wall outlet with a voltmeter. It must be 120 volts ac for 120 volt models, 100 volts for 100 volt models, and 230 volts for 230 volt models.
	2. Off/On/Start switch	(A) Momentarily press the Off/On/Start switch to the "START"(lower) position. (B) Refer to *Service* - Off/On/Start switch for testing procedures. See page 14
	3. Circuit Breaker (Not applicable on Model LPG with capacitor)	Press the "Reset" button, located on rear of the grinder. Listen carefully for a "click". This resets the motor protection circuit and indicates that an overload may have been encountered by the motor. (An overload can occur when something other than coffee is inserted into the hopper for grinding). Refer to *Service* - Circuit Breaker for testing procedure. See page 9
	4. Timer	Refer to *Service* - Timer for testing procedures. See page 16

TROUBLESHOOTING (cont.)

Problem	Probable Cause	Remedy
Grinder will not start. (Continued)	5. Motor	Each motor is equipped with a temperature and current overload protection feature which will immediately shut off the motor when an overload has occurred. Check the grinder for obstructions. Refer to *Service* - Motor for testing procedures. See page 11
Grinder will not shut off.	1. Off/On/Start switch	A) Place the switch in the “OFF" upper position. (B) Refer to *Service* - Off/On/Start Switch for testing procedures. See page 14
	2. Timer	Refer to *Service* - Timer for testing procedures. See page 16
Grinder starts, but will not dispense from either hopper.	1. Hopper(s)	Begin each grind cycle by visually inspecting the hopper(s) for ample supplies of whole bean coffee.
	2. Blockage of hopper(s)	Foreign materials must not block the openings at the bottom of the hopper(s).
	3. Slide Gate Solenoids (Model LPG-2E only)	Refer to *Service* - Solenoids for testing procedures. See page 14
	4. Timer	Refer to *Service* - Timer for testing procedures. See page 16
Incorrect amount of coffee.	1. Timer adjustment	Refer to the *Adjustments* section. See Timer adjustment page 5.
Incorrect coffee grind dispensed.	1. Burr adjustment	Refer to the *Adjustment* section. See Burr adjustment page 5.
Excessive chaff	1. Dechaffer	Replace the dechaffer springs. Replacement dechaffer springs are provided in the literature package accompnting the grinder. See page 10
Grinder only dispenses from one hopper	1. Hopper selector switch (Model LPG-2E only)	Refer to *Service* - Hopper selector switch for testing procedures. See page 10

SERVICE

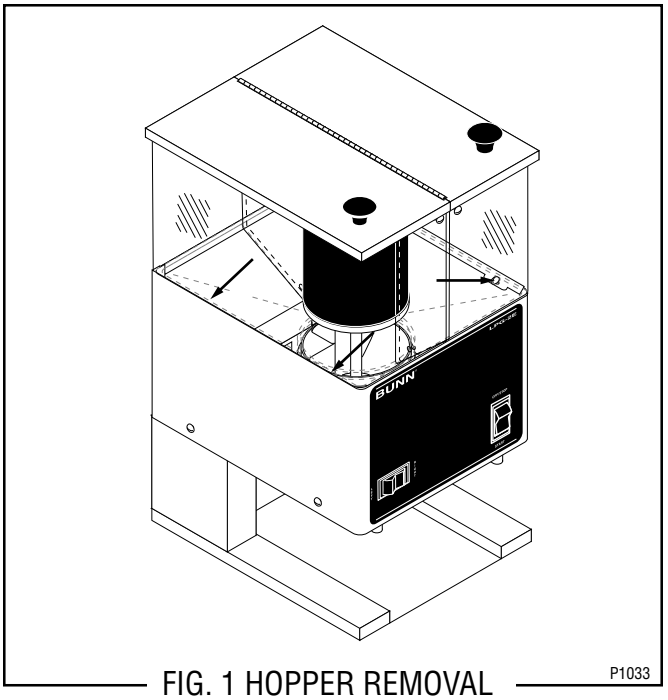
This section provides procedures for testing and replacing various major components used in this grinder should service become necessary. Refer to *Troubleshooting* for assistance in determining the cause of any problem.

WARNING - Inspection, testing, and repair of electrical equipment should be performed only by qualified service personnel. The grinder should be unplugged when servicing, except when electrical tests are required and the test procedure specifically states to plug-in the grinder.

Component Access

WARNING - Unplug the grinder before the removal of any panel or the replacement of any component.

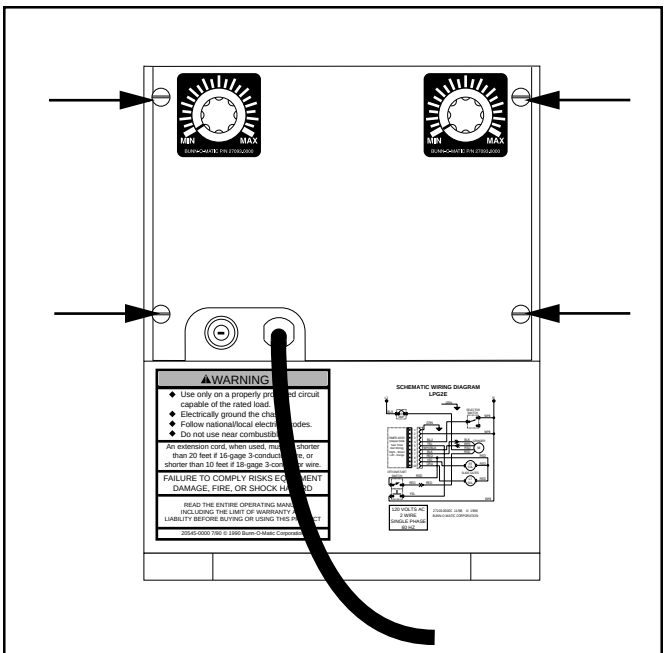
All components are accessible by the removal of the hopper and the rear panel.



P1033

FIG. 1 HOPPER REMOVAL

Remove all the coffee beans from the hopper. On Model LPG equipped with Hopper Burr Guard, remove the two screws attaching the guard to the motor cover. Remove the four #8-32 screws securing hopper to hopper housing. Lift hopper, lid and hopper divider (LPG-2E only) as an assembly over the motor assembly.



P1034

FIG.2 REAR PANEL REMOVAL

Remove the four #8-32 screws securing the rear panel and knob cover for Model LPG-2E, to the hopper housing. On Model LPG-2E, let the rear panel hang by the orange and brown wires from the timer board.

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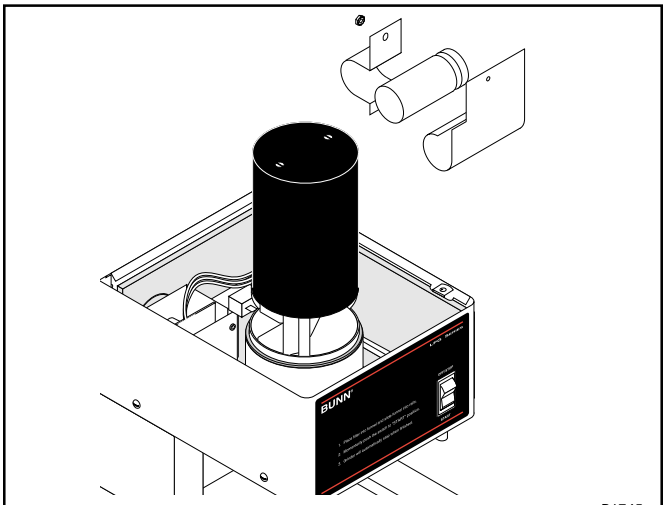
Capacitor (Model LPG)



P1745

FIG. 3 CAPACITOR

SERVICE (cont.)

Capacitor (Model LPG)(cont.)

Location:

The capacitor is located inside the front panel of the hopper housing next to the Off/On/Start switch.

Test Procedure:

1. Disconnect grinder from the power source.
2. Visually inspect the capacitor for leakage. If leakage is visible, replace the capacitor.
3. Connect the grinder to the power source, if the motor does not run, disconnect the capacitor wiring harness from the main wiring harness. If the motor now runs, replace the capacitor.

Removal and Replacement:

1. Disconnect the capacitor wiring harness from the main wiring harness.
2. Remove the #8-32 nut attaching the capacitor and mounting bracket to the hopper housing and remove the bracket, shield, capacitor and capacitor wiring harnes as an assembly.
3. Disconnect the wiring harness from the capacitor and attach it to a new capacitor making sure the black wire attaches to the positive (+) pole, FIG. 4.
4. Wrap the shield around the capacitor and place into the mounting bracket. Slide the lower tab of the mounting bracket between the wrapper and base and secure in place over the mounting stud with the #8-32 nut.
5. Reconnect the wiring harness to the main wiring harness.

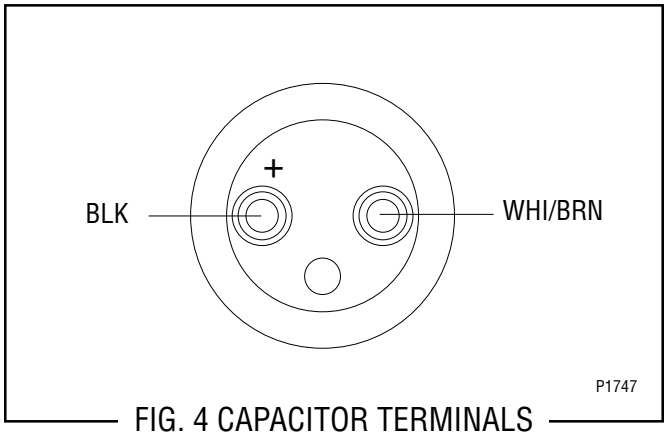


FIG. 4 CAPACITOR TERMINALS

Circuit Breaker

Location:

The circuit breaker is located on the rear of the grinder next to the power cord strain relief bushing. The circuit breaker is not available on Model LPG equipped with capacitor.

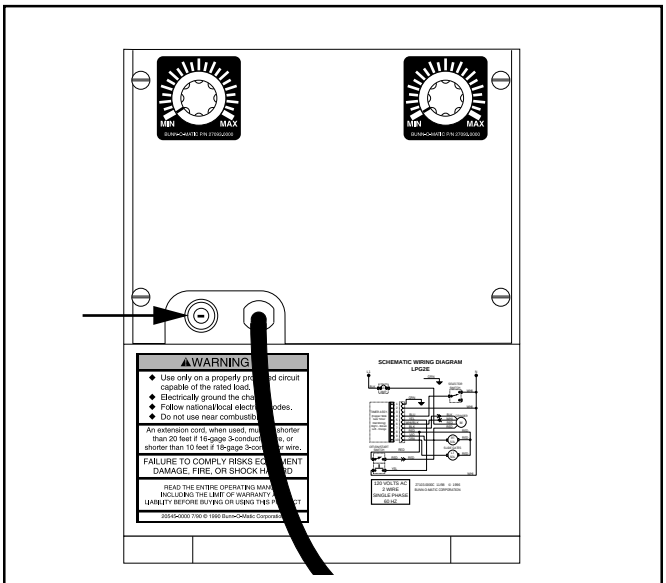


FIG. 5 CIRCUIT BREAKER

Test Procedure:

1. Disconnect grinder from the power source.
2. Remove the wires from the circuit breaker.
3. Check for continuity between the terminals. Continuity must be present between the terminals.

If continuity is present as described the circuit breaker is functioning properly.

If continuity is not present as described, press reset button and repeat step #3, if continuity is not present as described, replace the circuit breaker.

Removal and Replacement:

1. Remove the wires from the circuit breaker.
2. Remove the face nut securing circuit breaker to the motor support.
3. Remove circuit breaker.
4. Install new circuit breaker in motor support and secure with face nut.
5. Reconnect the wires.
6. Refer to FIG. 6 when reconnecting the wires.

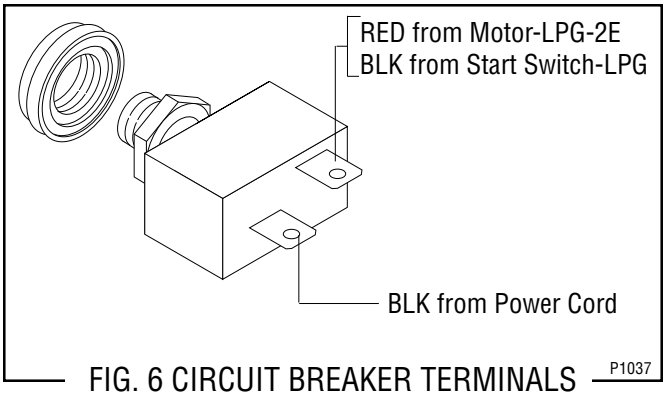


FIG. 6 CIRCUIT BREAKER TERMINALS

SERVICE (cont.)

Dechaffer

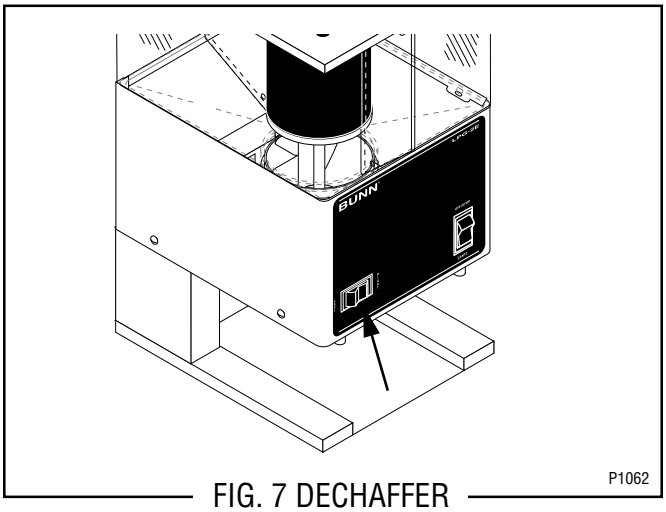


FIG. 7 DECHAFFER

Location:

The dechaffer spring plates are located in the burr housing cap.

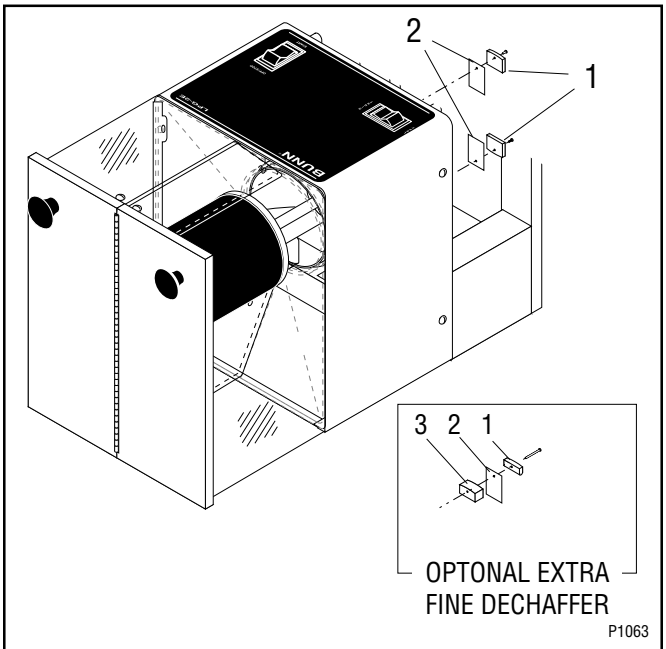


FIG. 8 DECHAFFER REMOVAL/REPLACEMENT

Removal and Replacement: Refer to Fig. 8

1. Remove coffee beans from hopper(s).
2. Lay grinder on it's back.
3. Remove the #4-40 truss head screw securing dechaffer support (1) to the burr housing cap.
4. Remove dechaffer support (1).
5. Remove dechaffer spring plate (2) from burr hosing cap.
6. For models with extra fine dechaffer, remove dechaffer support (3).
7 Place new dechaffer spring plate (2) in the slot in the burr housing cap.
8. Place dechaffer support (1) over dechaffer spring plate (2), support (3) and secure with a #4-40 truss head screw.

Hopper Selector Switch (Model LPG-2E)

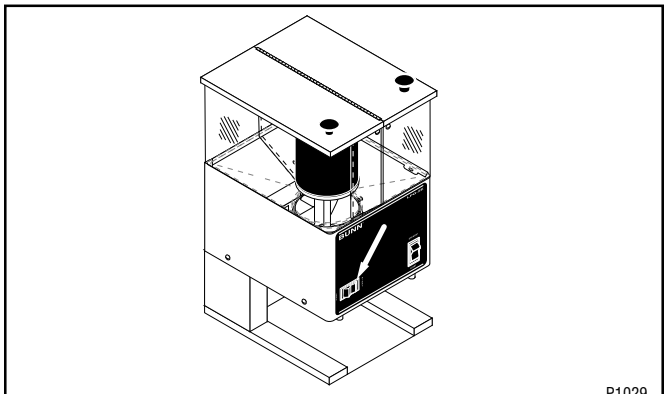


FIG. 9 HOPPER SELECTOR SWITCH

Location:

The Hopper Selector Switch is located in the lower left front of the hopper housing.

Test Procedure:

1. Disconnect grinder from the power supply.
2. Remove all wires from the switch terminals.
3. Check that the switch is installed properly, FIG. 10.
4. Place the selector switch in the left position.
5. Check for continuity across the terminals on the rear of the switch.

If continuity is present as described proceed to #6.
If continuity is not present as described, replace the switch.

6. Place the selector switch in the right position.
7. Check for continuity across the terminals on the rear of the switch. Continuity should not be present across terminals in the right position.

If continuity is not present as described, reconnect the wires, the switch is operating properly.
If continuity is present replace the switch.

Removal and Replacement:

1. Remove all wires from the switch terminals.
2. Compress the clips inside the front of the housing and gently push the switch through the opening.
3. Push the new switch into the opening and spread the clips to retain the switch in the housing.
4. Refer to Fig. 10 when reconnecting the wires.

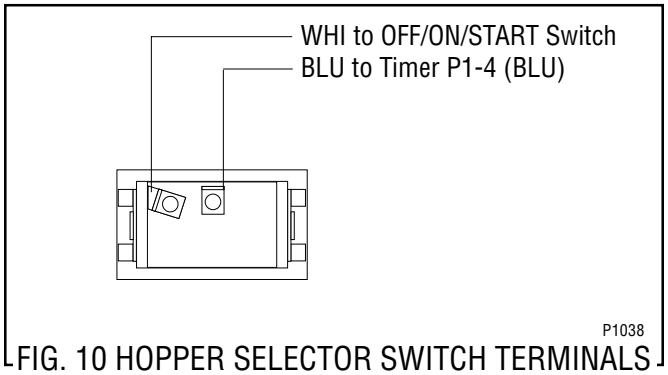


FIG. 10 HOPPER SELECTOR SWITCH TERMINALS
(Viewed from rear)

SERVICE (cont.)

Motor

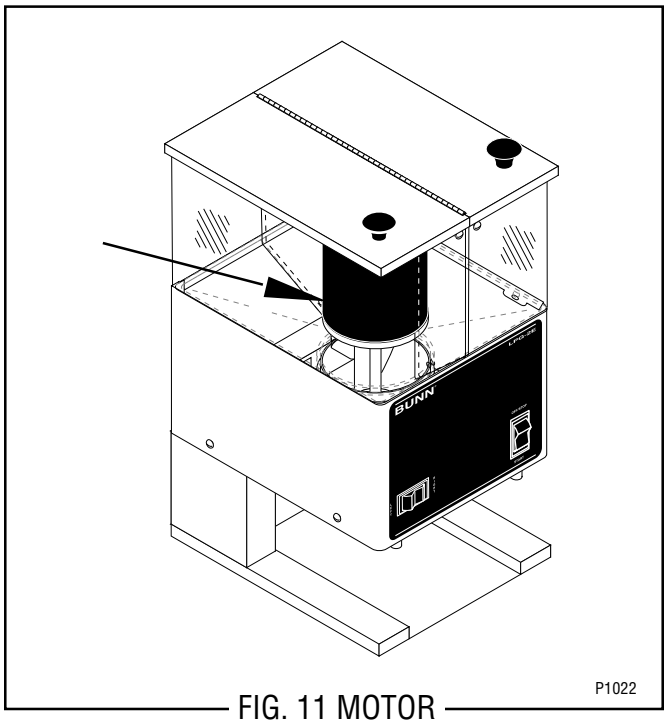


FIG. 11 MOTOR

Location:

The motor is located inside the hopper assembly.

Test Procedures:

1. Disconnect grinder from the power supply.
2. On Model LPG-2E, disconnect the black wire and the white wire to the motor from the main wiring harness, the red wire to the circuit breaker and the red wire to the Off/On/Start switch. On Model LPG disconnect the motor wiring harness from the main wiring harness.
3. Connect the leads of an ohm meter to the red wires from the motor.

If continuity is present the overload is good.
If continuity is not present the overload will not reset, replace the motor.

4. Set an ohm meter to read at least 20 ohms. Connect the leads from the ohm meter to the black wire and the white from the motor. The ohm reading should be approximately 18 ohms. Using the bean agitator slowly rotate the motor shaft in approximately 1/8 turn steps through one full rotation. If ohm readings are consistent motor windings are good. If readings vary more than ±1 ohm, replace motor.

NOTE: Clean all grind burrs and mounting surfaces before reassembly.

Removal and Replacement:

1. On Model LPG-2E, disconnect the black wire and the white wire to the motor from the main wiring harness, the red wire to the circuit breaker and the red wire to the Off/On/Start switch. On Model LPG disconnect the motor wiring harness from the main wiring harness.
2. On Model LPG-2E, disconnect the red wire from the left and right solenoid, the orange wire from the left solenoid and the violet wire from the right solenoid.

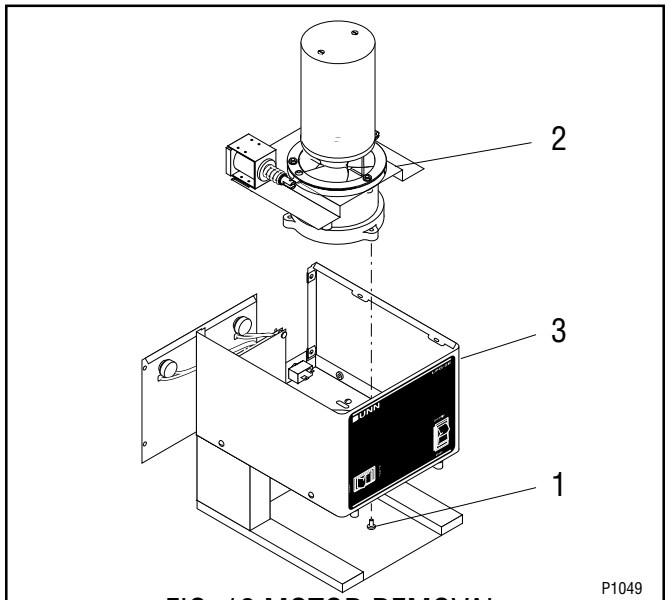


FIG. 12 MOTOR REMOVAL

3. Refer to Fig 12. Remove the three #10-32 x .25" screws (1) securing the motor to the motor support bracket.
4. Remove the motor, solenoid and solenoid components (2) from the hopper housing (3) as an assembly.

NOTE: Steps 5 thru 14 apply only to Model LPG-2E.

5. Refer to Fig.13. Remove the three #8-32 Keps nuts.
6. Lift the retaining ring w/hopper gasket (1) over the motor and burr housing assembly (9). Set aside for reassembly.
7. Remove the filler plate (2) and set aside for reassembly.
8. Lift slide plate, solenoid plunger and spring (3) off of the dowel pin in the mounting ring (6) and slide solenoid plunger and spring (3) out of solenoid coil. Set aside for reassembly. Repeat for opposite side.

SERVICE (cont.)

Motor (cont.)

9. Slide spacer plate (4) off of burr housing divider (8) and set aside for reassembly.
10. Loosen the #10-32 setscrew (5) securing the mounting ring and solenoid bracket (6) to the burr housing.
11. Lift mounting ring, solenoid bracket and solenoids (6) over the motor and burr housing assembly (9) and set aside for reassembly.
12. Remove the #8-32 setscrew (7) and set aside for reassembly.
13. Lay motor on it's side.

NOTE: Refer to Fig. 14 for the disassembly and assembly of the burrs and rotor.

14. Remove the two #10-32 fillister head screw securing burr housing cap (10) to the burr housing.
15. Remove cap, burr adjusting screw, decaffing plate and decaffer support (10) as an assembly. Set aside for reassembly.
16. Remove load disc (11) and set aside for reassembly.
17. Slide rotor (12), lower burr (13) and spring (14) as an assembly off the motor shaft, set aside for reassembly.
18. Remove burr housing divider (8) and set aside for reassembly.

NOTE: Inspect rotor. If rotor needs to be replaced, remove the two #10-32 binding head screws securing lower burr (13) to the rotor and remove burr. Install lower burr (13) on new rotor (12) using two #10-32 binding head screws.

19. Slide spring retaining bushing (15) off the motor shaft and set aside for reassembly.
20. Remove the two #10-32 binding head screws securing the upper burr (16) to the motor and housing assembly (17).
21. Remove the upper burr (16) and set aside for reassembly.

NOTE: If burrs need to be replaced, they must be replaced in matched pairs.

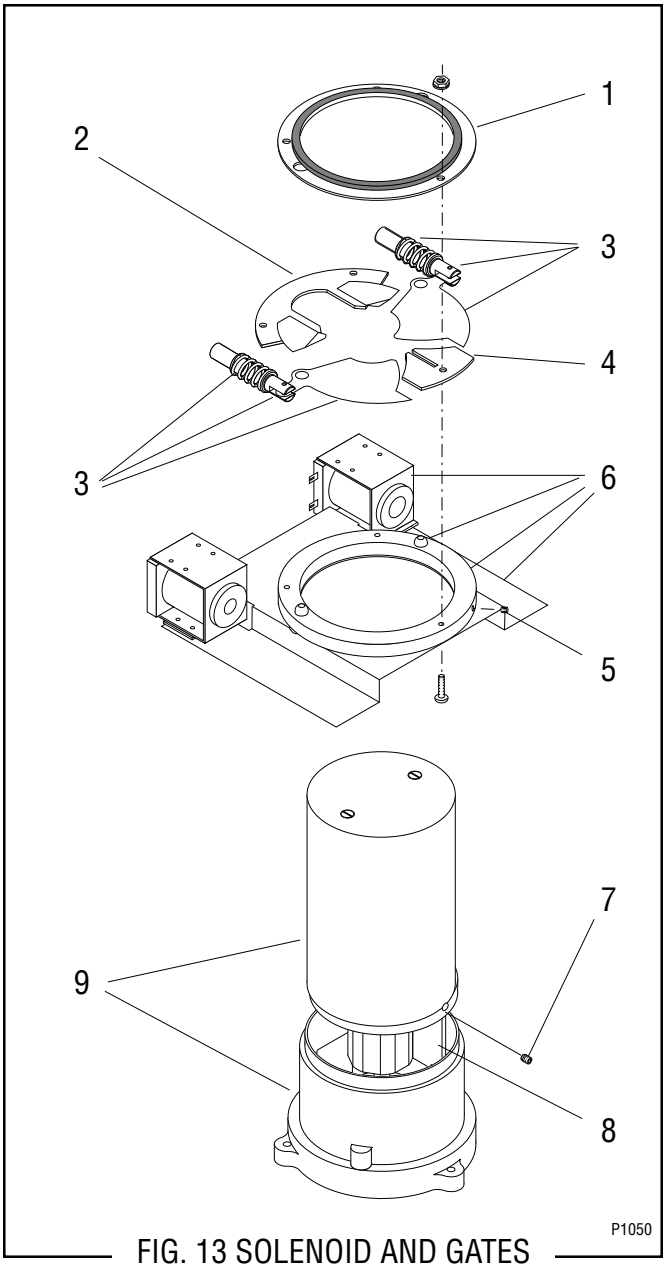


FIG. 13 SOLENOID AND GATES

1. Retaining Ring W/Hopper Gasket
2. Filler Plate
3. Slide Plate, Solenoid Plunger and Spring
4. Spacer Plate
5. Setscrew, #10 -32
6 Mounting Ring, Solenoid and Solenoid Mounting Plate
7. Setscrew, #8-32
8. Burr Housing Divider
9. Motor and Burr Housing

SERVICE (cont.)

Motor (cont.)

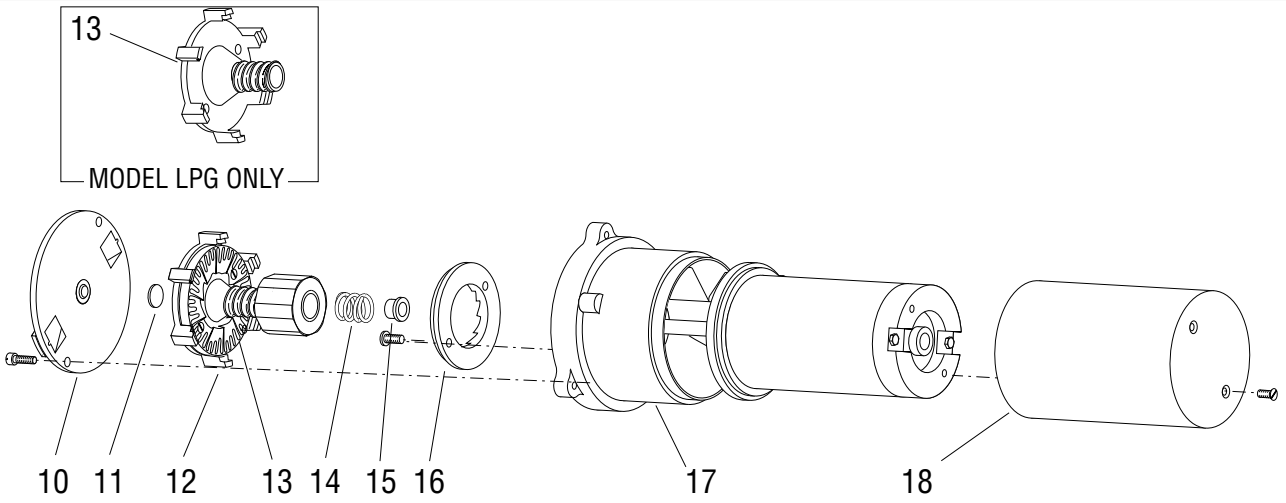


FIG. 14 ROTOR/AUGER, BURRS AND MOTOR COVER

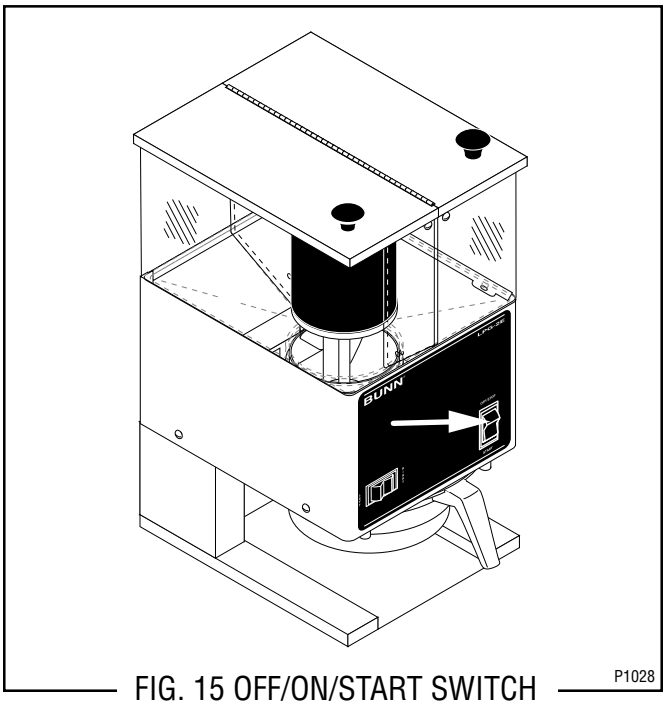
22. Remove the two #8-32 flat head screws securing the motor cover (18) to the motor and housing assembly (17) and remove the cover. Set aside for reassembly.
23. Discard old motor and housing assembly.
24. Place new motor on it's side and install motor cover (18) using two #8-32 flat head screws.
25. Install upper burr (16) to the new motor and housing assembly (17) using two #10-32 binding head screws.
26. Install spring retaining bushing (15) on motor shaft.
27. Refer to Fig. 13. Install burr housing divider (8) in slot in the burr housing and secure with #8-32 cup point setscrew (7), for Model LPG-2E only.
28. Refer to Fig. 14. Install rotor (12), lower burr (13) and spring (14) as an assembly on the motor shaft.
29. Install load disc (11) flat side towards rotor.
30. Install burr housing cap (10), adjusting screw, dechaffing spring plate and dechaffer support as an assembly to the new motor and housing assembly (17) using two #10-32 fillister head screws.
31. Set motor upright with burr housing at the bottom.

NOTE: Steps 32 thru 36 apply only to Model LPG-2E.

32. Install solenoids, solenoid bracket and mounting ring (6) as an assembly on the new motor with the solenoids located to the opposite side of the burr housing divider (8).
33. Install spacer plate (4) on burr housing divider (8) making sure the hole in the spacer plate (4) lines up with the hole in the mounting ring (6).
34. Install solenoid plunger with spring and slide plate (3) as an assembly into the solenoid coil. Place slide plate on the dowel in the mounting ring. Repeat for the opposite side.
35. Place filler plate (2) on mounting ring (6) over the top of the slide plates (3) with the holes in the filler plate in line with the holes in the mounting ring.
36. Install retaining ring w/hopper gasket (1) using three #8-32 pan head screws and three #8-32 keps nuts.
37. Refer to Fig.12. Install motor, solenoids and solenoid components (2) in the hopper housing (3) using three #10-32 truss head screws (1).
38. Reconnect wires for motor and solenoids. Refer to wiring schematic on page 18.

SERVICE (cont.)

OFF/ON/START Switch



P1028

FIG. 15 OFF/ON/START SWITCH

Location:

The Off/On/Start switch is located on the right front side of the hopper housing.

Test Procedure:

1. Disconnect grinder from the power source.
2. Remove all wires from the switch terminals.
3. Check for continuity across the .187" terminals of the switch when it is held in the lower "START" position. Continuity must not be present across these terminals in the center or upper position.

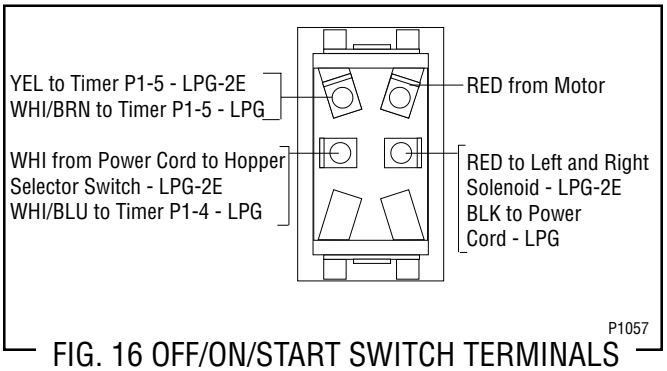
If continuity is present as described, proceed to #4.
If continuity is not present as described, replace the switch.

4. Check for continuity across the .25" terminals of the switch when it is in the "ON" position. Continuity must not be present in the upper "OFF" position.

If continuity is present as described, reconnect the wires, the switch is operating properly.
If continuity is not present as described, replace the switch.

Removal and Replacement:

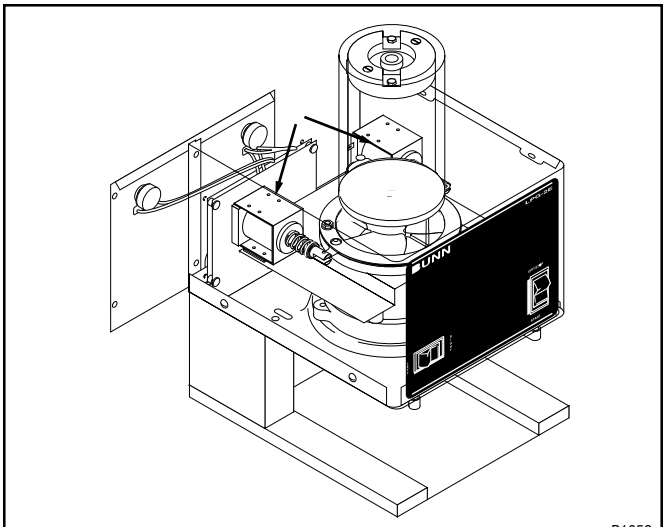
1. Remove all wires from the switch terminals.
2. Compress the clips inside the front of the hopper housing and gently push the switch through the opening.
3. Push the new switch into the opening and spread the clips to retain the switch in the hopper housing.
4. Reconnect all the wires to the switch terminals.
5. Refer to Fig. 16 when reconnecting the wires.


YEL to Timer P1-5 - LPG-2E
WHI/BRN to Timer P1-5 - LPG
WHI from Power Cord to Hopper Selector Switch - LPG-2E
WHI/BLU to Timer P1-4 - LPG
RED from Motor
RED to Left and Right Solenoid - LPG-2E
BLK to Power Cord - LPG

P1057

FIG. 16 OFF/ON/START SWITCH TERMINALS
(Viewed from rear)

Solenoid (Model LPG-2E)



P1058

FIG. 17 SOLENOIDS

Location:

The solenoids are located inside the hopper housing behind the left and right side of the motor.

Test Procedure:

1. Disconnect grinder from the power source.
2. Remove both wires from the solenoid coil terminals.
3. Check the voltage across the red wire and the violet wire removed from the right solenoid or the red wire and the orange wire removed from the left

SERVICE (cont.)

Solenoid (cont.)

solenoid with a voltmeter. Connect the grinder to the power source and place the Off/On/Start switch in the "ON" center position. The indication must be 120 volts AC.

4. Disconnect the grinder from the power source.

If voltage is present as described, proceed to #5.
If voltage is not present as described, refer to the wiring diagram and check grinder wiring harness.

5. Check for continuity across the solenoid coil terminals.

If continuity is present as described, reconnect the violet wire and the red wire on the right solenoid or the orange wire and the red wire on the left solenoid.
If continuity is not present as described, replace the solenoid.

6. Check the solenoid for coil action when the Off/On/Start switch is momentarily pressed to the "START" (lower) position and released. Connect grinder to the power source. Watch the slide gate open and close as the coil magnet attracts and after a period of time, releases the plunger.
7. Disconnect the grinder from the power source.

If the slide gate functions as described the solenoid is operating correctly.
If the slide gate does not function as described, replace the solenoid.

Removal and Replacement: Refer to Fig. 18

1. Loosen the two #8-32 pan head screws securing the timer mounting bracket to motor support.
2. Move timer bracket, timer and rear cover (1) away from the rear of the left solenoid.
3. Remove the shoulder screw (2) securing the solenoid to the solenoid mounting plate (6). Set aside for reassembly.
4. Slide solenoid (4) and solenoid mounting bracket (3) off of the solenoid plunger (5).
5. Remove the four #8-32 truss head screw securing the solenoid (4) to the solenoid mounting bracket

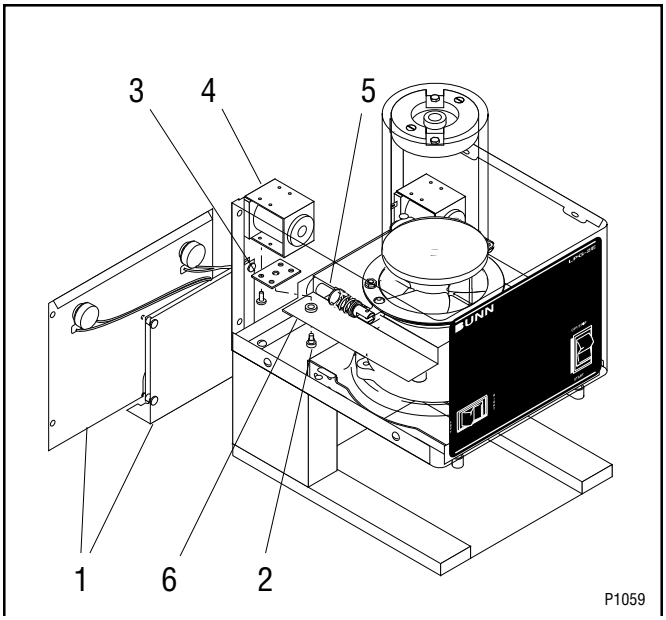


FIG. 18 SOLENOID REMOVAL AND INSTALLATION

(3). Set mounting bracket (3) and the four screws aside for reassembly.
6. Install new solenoid (4) on mounting bracket (3) using four #8-32 truss head screws.
7. Slide new solenoid (4) and mounting bracket (3) on the solenoid plunger (5) far enough so the hole in the mounting bracket (3) is in line with the hole in the solenoid mounting plate (6).
8. Install shoulder screw (2).
9. Slide timer mounting bracket and timer (1) under the two #8-32 pan head screws on the left rear of the motor support and tighten screws.
10. Repeat steps #3 through #8 for the right solenoid.
11. Refer to Fig. 19 and reconnect the wires to the solenoid coil terminals.

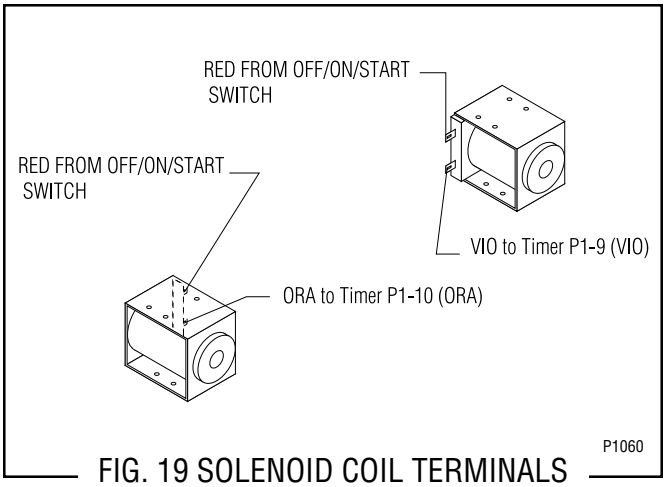


FIG. 19 SOLENOID COIL TERMINALS

SERVICE (cont.)

Timer (Model LPG-2E)

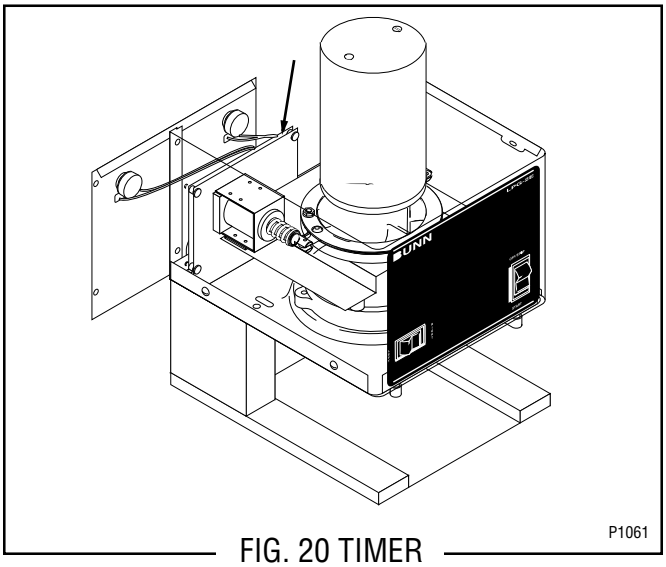


FIG. 20 TIMER

Location:

The timer is located inside the hopper housing just behind the left solenoid.

Test Procedure:

1. Disconnect grinder from the power source.
2. Insert the leads of a voltmeter set to read at least 120 volts AC, along side the red wire (terminal 8) and the white wire (terminal 2) of the harness plug. Place the Off/On/Start switch in the "ON" center position. Connect the grinder to the power source. The indication must be 120 volts AC.
3. Disconnect the grinder from the power source.

If voltage is present as described, proceed to step #4.
If voltage is not present as described, refer to the wiring diagram and check the grinder wiring harness.

4. Place the hopper selector switch in the left position.
5. Insert the leads of a voltmeter set to read at least 120 volts AC, along side the red wire (terminal 8) and the orange wire (terminal 10) of the harness plug. Place the Off/On/Start switch in the "START" lower position. Connect the grinder to the power source. The indication must be 120 volts AC for the set gate time and return to 0 volts.
6. Disconnect the grinder from the power source.

If voltage is present as described, proceed to step #7.
If voltage is not present as described, replace the timer.

7. Place the hopper selector switch in the right position.
8. Insert the leads of a voltmeter set to read at least 120 volts AC, along side the red wire (terminal 8) and the violet wire (terminal 9) of the harness plug. Place the Off/On/Start switch in the "START" lower position. Connect the grinder to the power source. The indication must be 120 volts AC for the set gate time and return to 0 volts.
9. Disconnect the grinder from the power source.

If voltage is present as described, proceed to step#10.
If voltage is not present as described, replace the timer.

10. Insert the positive (+) lead of a volt meter set to read at least 120 volts DC, along side the black wire (terminal 7) of the harness plug and insert the negative (-) lead along side the white/black wire (terminal 6) of the harness plug. Place the Off/On/Start switch in the "START" lower position. Connect the grinder to the power source. The indication must be 120 volts DC for the set gate time plus clean out time and return to 0 volts.

If voltage is present as described the timer is operating properly.
If Voltage is not present as described, replace the timer.

Removal and Replacement:

1. Disconnect the main wiring harness plug from the terminal block on the timer.
2. Remove the two timer dial knobs located on the rear panel of the grinder.
3. Remove nut and internal tooth lockwasher securing dials to the rear panel.
4. Loosen the two #8-32 pan head screws securing the timer and timer mounting bracket to the motor support plate.
5. Remove timer and timer mounting bracket from the grinder.
6. Remove the four #6-32 keps nuts securing the timer to the mounting bracket. Leave the four spacers on the mounting bracket studs.
7. Place new timer over the studs on the mounting bracket and secure with four #6-32 keps nuts.

Timer (Model LPG-2E)

8. Slip timer and timer mounting bracket under the two screws on the motor support plate and tighten screws.
9. Locate the left and right timer dials in their proper place on the rear panel and secure with nuts and internal tooth lockwashers.
10. Place timer knobs on timers.
11. Reconnect harness plug to the terminal block on the timer board.

Timer (Model LPG)

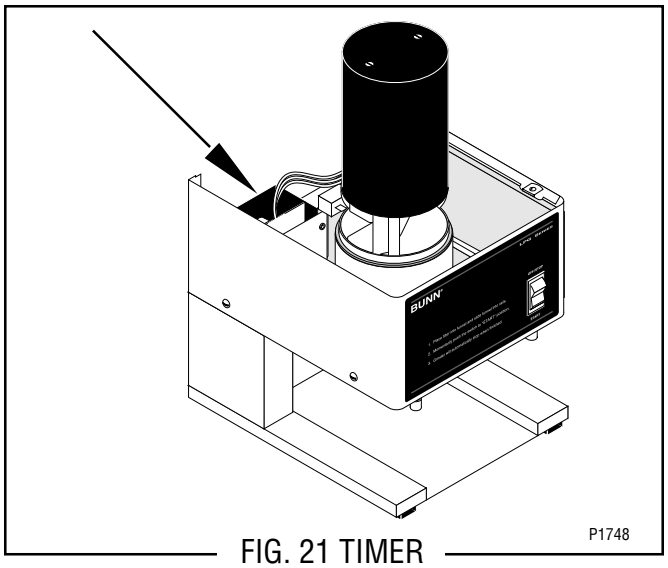


FIG. 21 TIMER

Location:

The timer is located inside the rear access panel. Adjustments can be made by removing the 2" hole plug.

Test Procedure:

1. Disconnect grinder from the power source.
2. Insert the leads of a voltmeter set to read at least 120 volts AC, along side the red wire (terminal 1) and the white/black wire (terminal 2) of the harness plug. Place the Off/On/Start switch in the "ON" center position. Connect the grinder to the power source. The indication must be 120 volts AC for 120 volt models, 100 volts for 100 volt models, and 230 volts for 230 volt models.
3. Disconnect the grinder from the power source.

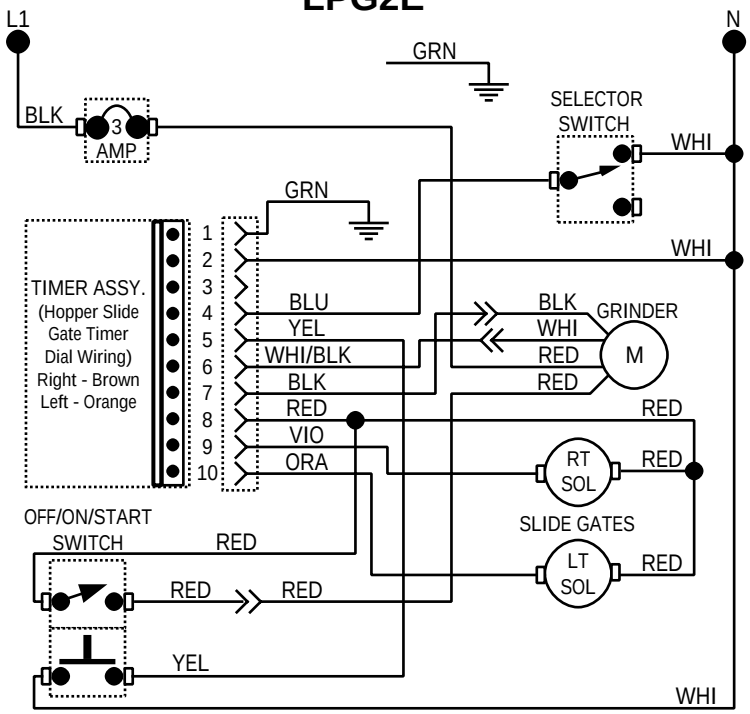
If voltage is present as described, proceed to step #4. If voltage is not present as described, refer to the wiring diagram and check the grinder wiring harness.

4. Insert the positive (+) lead of a volt meter set to read at least 120 volts DC (157 volts DC on units with capacitor), along side the black wire (terminal 3) of the harness plug and insert the negative (-) lead along side the white wire (terminal 6) of the harness plug. Place the Off/On/Start switch in the "START" lower position. Connect the grinder to the power source. The indication must be 120 volts DC for 120 volt models (157 volts DC on units with capacitor), 100 volts for 100 volt models, and 230 volts for 230 volt models for the set time and return to 0 volts.
5. Disconnect the grinder from the power source.

If voltage is present as described the timer is operating properly.
If Voltage is not present as described, replace the timer.

WIRING SCHEMATICS

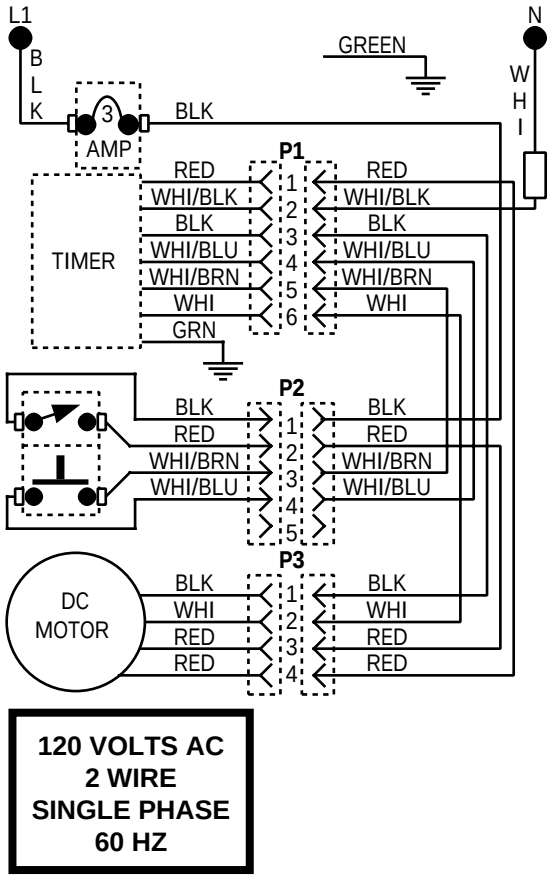
SCHEMATIC WIRING DIAGRAM
LPG2E



120 VOLTS AC
2 WIRE
SINGLE PHASE
60 HZ

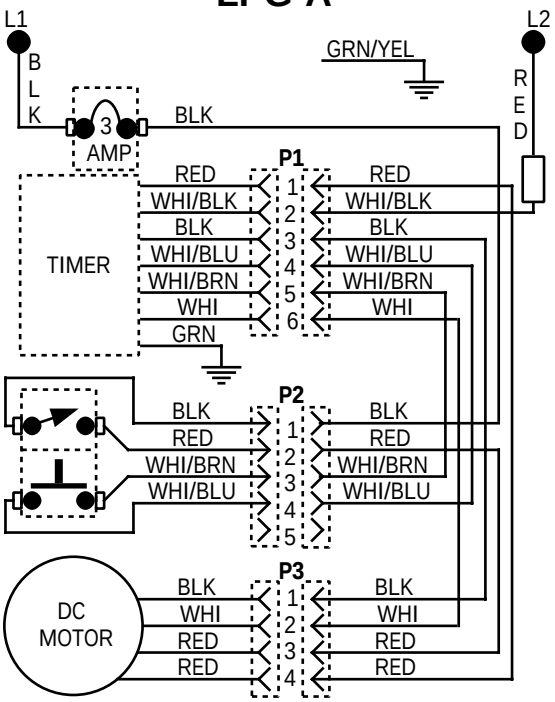
SCHEMATIC WIRING DIAGRAM

LPG



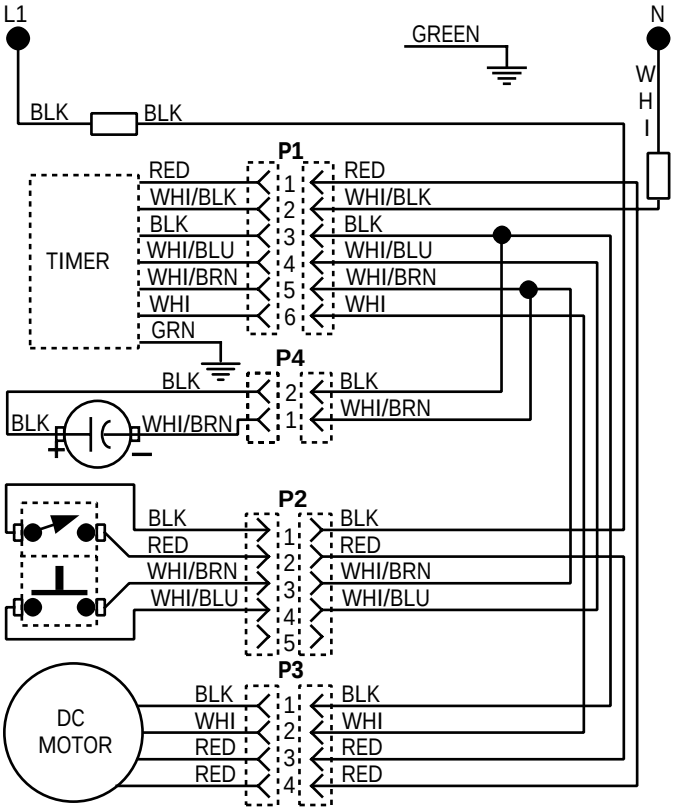
120 VOLTS AC
2 WIRE
SINGLE PHASE
60 HZ

SCHEMATIC WIRING DIAGRAM
LPG-A



230 VOLTS AC
2 WIRE
SINGLE PHASE
50/60 HZ

SCHEMATIC WIRING DIAGRAM
LPG W/Capacitor



SCHEMATIC WIRING DIAGRAM

LPG-B